

First record of *Muschampia cribrellum* in Bulgaria, with a review of the recorded distribution of genus *Muschampia* in the country (Lepidoptera: Hesperiiidae)

Zdravko Kolev

Summary. *Muschampia cribrellum* (Eversmann, 1841) is reported as new to Bulgaria on the basis of two misidentified males in the collection of the Museum of Natural History – Burgas. In addition the distribution of the other two *Muschampia* species reported from Bulgaria is reviewed.

Резюме. *Muschampia cribrellum* (Eversmann, 1841) се съобщава за пръв път от България по два погрешно определени мъжки екземпляра от колекцията на Бургаския Природонаучен Музей. Обобщават се и данните за срещането на другите два вида от род *Muschampia* в България.

Samenvatting. Eerste vermelding van *Muschampia cribrellum* in Bulgarije, met een overzicht van de vermelde waarnemingen van het genus *Muschampia* in dat land (Lepidoptera: Hesperiiidae)

Muschampia cribrellum (Eversmann, 1841) wordt als nieuwe soort voor de Bulgaarse fauna vermeld op grond van twee verkeerd gedetermineerde mannetjes in de verzameling van het Museum of Natural History te Burgas. Verder wordt de verspreiding besproken van de andere twee *Muschampia*-soorten vermeld uit Bulgarije.

Résumé. Première mention de *Muschampia cribrellum* en Bulgarie, avec révision de la distribution des deux autres espèces de *Muschampia* citées de Bulgarie (Lepidoptera: Hesperiiidae)

Muschampia cribrellum (Eversmann, 1841) est mentionné ici pour la première fois en Bulgarie, d'après deux mâles fautivelement identifiés dans la collection du Musée d'Histoire naturelle à Burgas. Aussi, la distribution des deux autres espèces bulgares de *Muschampia* est-elle discutée.

Key words: Lepidoptera – Hesperiiidae – *Muschampia* – *tessellum* – *cribrellum* – *proto* – Bulgaria – Balkan Peninsula.

Kolev, Z.: Department of Ecology and Systematics, P.O. Box 65 (Viikinkaari 1), FIN-00014 University of Helsinki, Finland. E-mail: zdravko.kolev@helsinki.fi.

Introduction

In Europe, the Spinose Skipper *Muschampia cribrellum* (Eversmann, 1841) is a very local species with a distribution restricted only to the eastern parts of the continent. Its westernmost localities are found in E Hungary (Tolman & Lewington 1997; Tolman 2001), W Romania: several localities in Transylvania (e.g. Lorković 1983; Tolman & Lewington 1997; Kudrna 2002), and Republic of Macedonia: Suva Planina SW of Skopje (Lorković 1983; Schaidler & Jakšić 1989) and the gorge of Treska river W of Mt. Jakupica (Schaidler & Jakšić 1989). These, within all probability relict, localities are widely separated from each other as well as from the main range of the species, which comprises the steppe zone of Eurasia from Ukraine and European Russia to the basin of Amur river (Korshunov & Gorbunov 1995; Gorbunov 2001).

First Bulgarian record of *Muschampia cribrellum*

Already in 1992, while examining the small Lepidoptera collection of the Museum of Natural History – Burgas (hereafter MNHB), the present author discovered three specimens labeled as "*Pyrgus armoricanus* Obth." which bore identical labels "Бургас, 10.8.74, С. Загорчинов" [Burgas, 10.8.[19]74, S[avar]. Zagorchinov [leg.]]. In reality one of these was a male of *Pyrgus cinarae* (Rambur, [1839]), while the remaining two males clearly belonged to a species of *Muschampia*. As there are old records of a similar species, *Muschampia tessellum* (Hübner, [1803]), from two localities in Burgas (Tschorbadjiew 1915; see below), these two specimens were considered to belong to this species. A note was nevertheless made of their unusually small size (forewing length 14–15 mm) compared to *tessellum* (typically 16–19 mm), which prompted a further study of this material. This I carried out in August 2002, as part of an inventory of the butterfly materials in MNHB.

Closer inspection of the two *Muschampia* specimens surprisingly revealed that they exhibit, apart from the smaller size and the more narrow and pointed wings, two further characters (Figs. 1 & 2) which separate them from *tessellum* and identify them beyond any doubt as belonging to the species *Muschampia cribrellum* (Eversmann, 1841). The first character, which is in fact unique to *cribrellum*, is the presence of two postdiscal pairs of elongated white spots in space 1b on the forewing upperside (cf. Lorković 1983), though occasionally the lower spot of the distal pair may be much reduced or absent; *tessellum* and related taxa only have one pair of postdiscal spots in this space. The other character is the absence in *cribrellum* of a transverse white discal bar on the forewing upperside; such is present in *tessellum* (Korshunov & Gorbunov 1995).

This first Bulgarian record of *M. cribrellum* is separated by about 500 km from the nearest known localities of this species, in Republic of Macedonia and Romania. Thus it represents a very important extension to the range of this poorly known species in Europe and the Balkans.

It must be noted that the label data on these specimens are not without ambiguity. The date "10.8." and the very fresh condition of the specimens appear to contradict each other, considering that *cribrellum* is univoltine (Gorbunov 2001) and flies from mid-May to mid-August (Korshunov & Gorbunov 1995), and that at sea level (Burgas) its flight should be expected to begin very early indeed. The same contradiction concerns the male *Pyrgus cinarae* (which is also a fresh specimen in excellent condition) with the same label data as the two *cribrellum*. This too is a univoltine species which in Bulgaria flies from mid-June till mid-August (pers. observ.). In the nearest locality to Burgas from which it is known (the vicinity of Sliven), even at its upper distributional limit (1000 m), only very worn females are still on the wing in the first half of August (pers. observ.). It is unlikely that these species can produce a second generation in Bulgaria and I have found no record of either of them doing so elsewhere. Delayed emergence does not appear probable either.

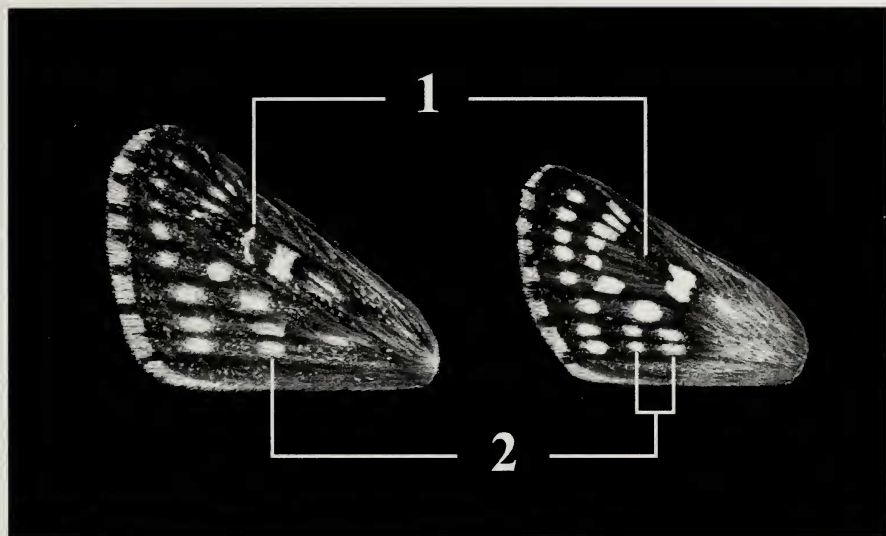


Fig. 1. Differentiating characters on the forewing upperside in *Muschampia tessellum* (left) and *M. cribrellum* (right). 1.– Presence vs. absence of white bar at end of cell. 2.– One pair vs. two pairs (but see text) of postdiscal spots in space 1b.

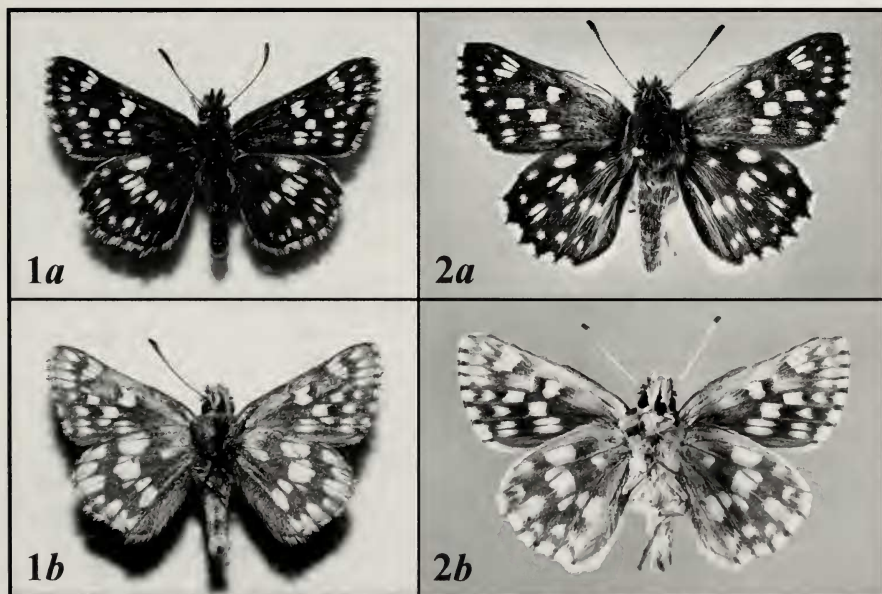


Fig. 2. 1.– *Muschampia cribrellum* ♂: "Burgas, 10.8.[19]74, S[evar]. Zagorčinov [leg.]", in coll. MNHB. 2.– *Muschampia tessellum* ♂: "[SW Bulgaria, Mt. Belasitsa,] h. Belasiza ["Belasitsa" chalet], 26–29.VI.1981, leg. Al. Slivov", in coll. IZS (a: upperside, b: underside).

Judging from the condition of the specimens of *M. cribrellum* and *P. cinarae* and assuming that they have been collected on the same occasion, it appears most likely that these have been collected in the second half of June or the first half of July.

Despite this, there is no reason to doubt the locality itself, although its rather vague wording is to be regretted as it is unlikely to be of much help in an eventual future search for *cribrellum*. I was kindly informed by the staff at MNHB that the late S. Zagorichinov had collected on many occasions in the first half of the 1970's in or near Burgas specifically at the Museum's request in order to assemble a representative regional collection of Lepidoptera for the Museum's permanent exhibition and its fund. Therefore, it is to be hoped that new search for this species and its congener *tessellum* be undertaken as soon as possible. As both species have similar ecological preferences and occur together over much of their range in the steppes of temperate Eurasia (Korshunov & Gorbunov 1995; Gorbunov 2001), they are likely to be found in the same habitats in the surroundings of Burgas as well.

Other species of genus *Muschampia* reported from Bulgaria

Muschampia tessellum (Hübner, [1803]) (Fig. 3). The first Bulgarian localities to be discovered were on the northern outskirts of Burgas, where a single male was caught by P. Chorbadzhiev in 1910 on the narrow, sandy coastal strip between the Atanasovsko Ezero lake and the Black Sea; in 1911 he reportedly collected "numerous specimens" therein and "single" in a second coastal locality to the south of Burgas, known as Chengene Skelya (Tschorbadjiew 1915). Buresch & Tuleschkow (1930) reported that there were 15 specimens in the collection of the Royal Entomological Station – Sofia, collected on 1–19.VI.1911 by Chorbadzhiev in the surroundings of Burgas. Despite its reported abundance, the population on the coastal strip appears now to be extinct due to a complete degradation of the habitat (see below); to my knowledge, so far there has been no attempt to ascertain the fate of the population of Chengene Skelya.

On 16.VI.1929, during an expedition of the Royal Entomological Station – Sofia to Mt. Alibotush in SW Bulgaria, K. Tuleschkov captured a single completely fresh specimen of *tessellum* in the northern foothills of Chengene Kale ridge near Petrovo village (Tuleschkow 1929). I am not aware of any attempt to rediscover this population ever since.

Further material of *tessellum* exists in the collection of A. Slivov kept in the Institute of Zoology – Sofia (IZS). There is a single male with label data "[Kresna gorge in SW Bulgaria,] sp. St. Kresna [the railway stop "Stara Kresna"]", 04.06.1988 [A. Slivov leg.], and two males with label data "[SW Bulgaria, Mt. Belasitsa] h. Belasitsa ["Belasitsa" chalet], 26-29-VI.1981, leg. Al. Slivov" (Fig. 2). These previously unpublished localities are fully plausible but require confirmation on account of the numerous cases of clear mislabellings in the materials of A. Slivov (cf. Kolev 2002).

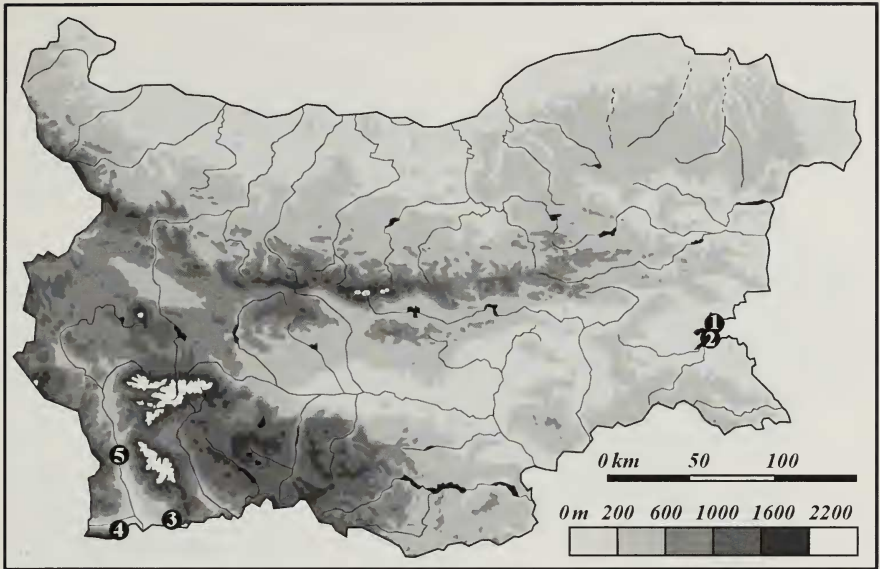


Fig. 3: Records of *Muschampia tessellum* in Bulgaria. 1.– the northern outskirts of Burgas, the coastal strip between Atanasovsko Ezero lake and the Black Sea (Tschorbadzhiev 1915); 2.– the southern outskirts of Burgas, the coastal locality "Chengene Skelya" (Tschorbadzhiev 1915); 3.– "[In the northern foothills of Chingene Kale [ridge near Petrovo village] by Bistritsa river, 16.06.[1929], one completely fresh specimen]" (Tuleschkow 1929); 4.– 2♂: "[Mt.] Belasica [near "Belasitsa" chalet], 26-29.VI.1981 [A. Slivov leg.]", in need of confirmation; 5.– 1♂: "sp. St. Kresna [the railway stop "Stara Kresna"]", 04.06.1988 [A. Slivov leg.]", in need of confirmation.

Muschampia proto (Ochsenheimer, [1808]) (Fig. 4). There is only a single, recently published record from Bulgaria (Abadjiev 2001), which is based on a single male in coll. IZS with label data "[SW Bulgaria, Mt.] Belasica [near "Belasitsa" chalet – A. Slivov, pers. comm.], 15.04.1975, leg. A. Slivov". This record is doubtful and requires confirmation for reasons detailed by Kolev (2002).

Conclusion

The surprising discovery of *Muschampia cribrellum* as new to Bulgaria should, and hopefully will, once again attract attention to the rich and unusual butterfly fauna in the surroundings of Burgas, unjustly neglected in recent decades by lepidopterists. Apart from the skippers *Muschampia tessellum* and *M. cribrellum* this fauna includes other species that are rare and very local in Bulgaria, most notably *Coenonympha oedippus* (Fabricius, 1787) (the only locality in the country!), *Melitaea arduinna* (Esper, [1783]) and *M. britomartis* Assmann, 1847. These three species were all collected by P. Chorbazhiev in the early XX century, and more recent observations are lacking.

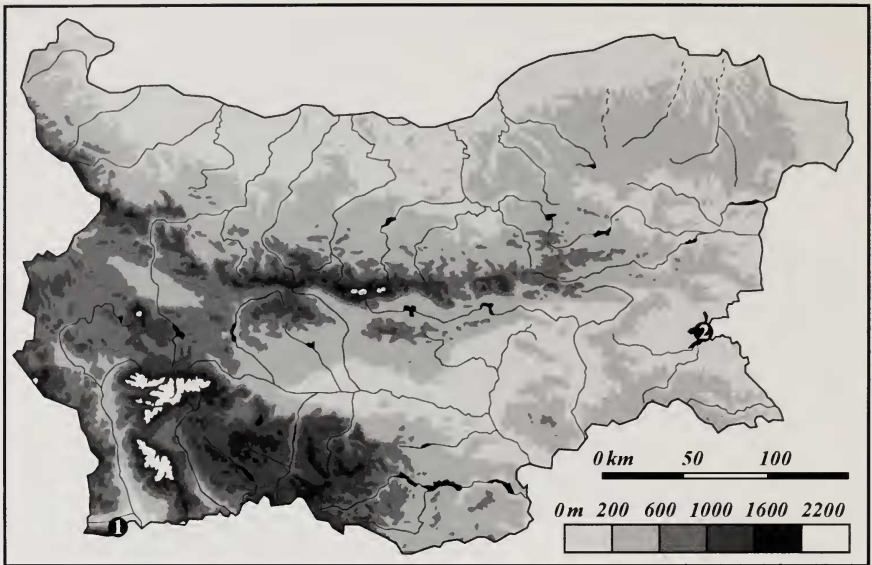


Fig. 4. Records of *Muschampia proto* and *M. cribrellum* in Bulgaria. 1.– *M. proto*: [Mt.] Belasica [near "Belasitsa" chalet – A. Slivov, pers. comm.], 15.04.1975, leg. Al. Slivov" (Abadjiev 2001); in need of confirmation; 2.– *M. cribrellum*: "Burgas, 10.8.[19]74, S[ever], Zagorčinov [leg.]"; the dot is plotted, due to lack of fuller data, so as to correspond to the city of Burgas.

New search for all these species and their habitats is urgently needed in order to establish whether they still occur in the environs of Burgas and if so, to gather data on their ecological preferences and conservation status. The latter objective is particularly important because Burgas is an expanding and heavily industrialized city, and loss of species-rich habitats is certain to occur without proper ecological data and conservation efforts to prevent it. For example, in June 1999 I visited the narrow strip of land between Atanasovsko lake and the sea (where, as was said above, Chorbadzhiev found *M. tessellum* in 1910 and 1911) with the specific purpose to establish whether this species might still occur there. However, any habitats that have existed there in the early XX century are long gone: the southern end of the strip is partly beach and partly in small-scale agricultural use while the rest is occupied by a salt extraction plant, with the concurrent physical degradation of its near surroundings. What little of the accessible area (outside the perimeter of the plant) was left outside human use was overgrown by a species-poor ruderal vegetation which, not surprisingly, hosted a very poor butterfly fauna consisting of generalist and migrant species.

With regard to genus *Muschampia* in Bulgaria, it stands out as being perhaps the most poorly known genus of diurnal Lepidoptera in the country. Its three species are known only from sporadic and, in several cases, doubtful records, and there are practically no data regarding even the precise nature of their

habitats let alone their biology. Research focused specifically upon these species is most desirable.

Acknowledgements

I am grateful to the staff of Museum of Natural History – Burgas and Mr. Alexander Slivov (Sofia) for their kind permission to study their respective collections and for the relevant information.

References

- Abadjiev, S. P., 2001. *An Atlas of the Distribution of the Butterflies in Bulgaria (Lepidoptera: Hesperioidea & Papilionoidea)*. — Pensoft Publishers, Sofia – Moscow, 335 pp.
- Buresch, I. & Tuleschkow, K., 1930. [Die horizontale Verbreitung der Schmetterlinge (Lepidoptera) in Bulgarien]. II. — *Mitt. königl. nat. Inst. Sofia* 3: 145–248 (in Bulgarian).
- Gorbunov, P. Y., 2001. *The butterflies of Russia: classification, genitalia, keys for identification (Lepidoptera: Hesperioidea and Papilionoidea)*. — “Thesis”, Ekaterinburg, 320 pp.
- Kolev, Z., 2002. Critical notes on some recent butterfly records (Lepidoptera: Papilionoidea & Hesperioidea) from Bulgaria and their source collection. — *Phegea* 30: 95–101.
- Korshunov, Y. P., & Gorbunov, P. Y., 1995. [*The butterflies of the Asian part of Russia: A reference guide*]. — Izdatel'stvo Ural'skogo universiteta, Yekaterinburg, 202 pp (In Russian).
- Kudrna, O., 2002. The Distribution Atlas of European Butterflies. — *Oedippus* 20:1–342.
- Lorković, Z., 1983. A new *Syrichthus* and two doubtful *Pyrgus* species for the fauna of Yugoslavia (Lep., Hesperioidea). — *Acta entomol. Jugoslavica* 19: 33–41.
- Schaider, P. & Jakšić, P., 1989. *Die Tagfalter von jugoslawisch Mazedonien*. — Paul Schaidler, München, 177 pp., 46 pls.
- Tolman, T. W., 2001. *Photographic Guide to the Butterflies of Britain and Europe*. — Oxford University Press, xvi + 305 pp.
- Tolman, T. W. & Lewington, R., 1997. *Butterflies of Britain and Europe*. — Collins Field Guide Series, Harper Collins Publishers, 320 pp., 104 pls.
- Tschorbadjiev, P., 1915. Beitrag zur Macro- und Microlepidopteren-Fauna von Burgas. — *Sammelwerk der Bulg. Akad. Wiss.* 5: 1–78 (in Bulgarian).
- Tuleschkow, K., 1929. Beitrag zur Lepidopterenfauna des Alibotusch Gebirges in Mazedonien. — *Arb. bulg. nat. Ges.* 14: 151–165 (in Bulgarian).